

BRAIN AND NERVOUS SYSTEM MCQs

1. Which is the structural and functional unit of the nervous system?

- A) Brain
- B) Neuron
- C) Nerve
- D) Synapse

2. Which part of the brain controls balance and posture?

- A) Cerebrum
- B) Cerebellum
- C) Medulla oblongata
- D) Thalamus

3. Which part of the brain controls breathing and heartbeat?

- A) Cerebrum
- B) Medulla oblongata
- C) Hypothalamus
- D) Pons

4. Which neurotransmitter is involved in muscle contraction?

- A) Dopamine
- B) Acetylcholine
- C) Serotonin
- D) GABA

5. Myelin sheath in CNS is produced by:

- A) Schwann cells
- B) Oligodendrocytes
- C) Astrocytes
- D) Microglia

6. Which part of the brain is known as the "seat of intelligence"?

- A) Cerebellum
- B) Cerebrum
- C) Hypothalamus
- D) Medulla

7. Which ion is essential for nerve impulse conduction?

- A) Sodium & Potassium
- B) Calcium & Magnesium
- C) Iron & Zinc
- D) Chloride & Bicarbonate

8. The gap between two neurons is called:

- A) Axon
- B) Dendrite
- C) Synapse
- D) Neurolemma

9. Which part of the brain regulates hunger, thirst, and body temperature?

- A) Hypothalamus
- B) Cerebrum
- C) Cerebellum
- D) Medulla

10. Which nerve is the largest in the human body?

- A) Sciatic nerve
- B) Vagus nerve
- C) Optic nerve
- D) Facial nerve

11. The covering layers of the brain are collectively called:

- A) Meninges
- B) Neuroglia
- C) Myelin
- D) Corpus callosum

12. Which part of the nervous system prepares the body for "fight or flight"?

- A) Parasympathetic
- B) Sympathetic
- C) Somatic
- D) Central

13. The functional connection between sensory and motor neurons in the spinal cord is called:

- A) Reflex arc
- B) Synaptic cleft
- C) Nerve tract
- D) Axon hillock

14. Which lobe of the brain is responsible for vision?

- A) Temporal
- B) Occipital
- C) Frontal
- D) Parietal

15. Which brain structure connects the two cerebral hemispheres?

- A) Pons
- B) Corpus callosum
- C) Medulla
- D) Hypothalamus

16. Which cranial nerve is responsible for smell?

- A) Optic nerve
- B) Olfactory nerve
- C) Trigeminal nerve
- D) Facial nerve

17. Which brain wave is dominant during deep sleep?

- A) Alpha
- B) Beta
- C) Theta
- D) Delta

18. Loss of dopamine-producing neurons leads to:

- A) Alzheimer's disease
- B) Parkinson's disease
- C) Epilepsy
- D) Schizophrenia

19. Which part of the brain is known as the "emotional brain"?

- A) Limbic system
- B) Cerebellum
- C) Brainstem
- D) Thalamus

20. Which part of the neuron receives signals from other neurons?

- A) Axon
- B) Dendrite
- C) Node of Ranvier
- D) Synaptic vesicle

21. The refractory period in a neuron ensures:

- A) Stronger impulses
- B) One-way conduction of impulses
- C) Faster conduction
- D) No synapse activity

22. Which lobe of the brain is associated with reasoning and decision-making?

- A) Frontal
- B) Parietal
- C) Temporal
- D) Occipital

23. Which glial cells form the blood-brain barrier?

- A) Microglia
- B) Schwann cells
- C) Astrocytes
- D) Oligodendrocytes

24. The autonomic nervous system controls:

- A) Voluntary muscles
- B) Skeletal system
- C) Involuntary activities
- D) Spinal reflex

25. Which cranial nerve is called the "wandering nerve"?

- A) Trigeminal
- B) Vagus
- C) Facial
- D) Accessory

26. Which part of the brain coordinates voluntary muscle activity?

- A) Cerebrum
- B) Cerebellum
- C) Medulla
- D) Hypothalamus

27. In a reflex arc, which component directly carries impulses to an effector?

- A) Sensory neuron
- B) Interneuron
- C) Motor neuron
- D) Receptor

28. Which neurotransmitter is deficient in Alzheimer's disease?

- A) Acetylcholine
- B) Dopamine
- C) GABA
- D) Serotonin

29. Saltatory conduction occurs in:

- A) Non-myelinated axons
- B) Myelinated axons
- C) Dendrites
- D) Synaptic clefts

30. The "master gland" pituitary is directly controlled by:

- A) Cerebrum
- B) Hypothalamus
- C) Thalamus
- D) Medulla

31. Which ion triggers the release of neurotransmitters at synaptic terminals?

- A) Sodium
- B) Potassium
- C) Calcium
- D) Chloride

32. Which part of the brain acts as a relay center for sensory information?

- A) Thalamus
- B) Cerebellum
- C) Medulla
- D) Pons

33. Broca's area of the brain is associated with:

- A) Vision
- B) Hearing
- C) Speech production
- D) Memory

34. Which nerve controls diaphragm movement and breathing?

- A) Phrenic nerve
- B) Sciatic nerve
- C) Vagus nerve
- D) Glossopharyngeal nerve

35. Which part of the neuron transmits impulses away from the cell body?

- A) Dendrite
- B) Axon
- C) Nucleus
- D) Soma

36. Which type of glial cells remove debris and act as phagocytes?

- A) Astrocytes
- B) Oligodendrocytes
- C) Microglia
- D) Schwann cells

37. Which condition is caused by demyelination of axons?

- A) Alzheimer's disease
- B) Multiple sclerosis
- C) Epilepsy
- D) Stroke

38. Which brain region regulates circadian rhythm and sleep?

- A) Hypothalamus (suprachiasmatic nucleus)
- B) Cerebellum
- C) Medulla
- D) Amygdala

39. Which nervous system division controls skeletal muscles?

- A) Somatic
- B) Autonomic
- C) Sympathetic
- D) Parasympathetic

40. The speed of nerve impulse is highest in:

- A) Thin non-myelinated fibers
- B) Thick myelinated fibers
- C) Thin myelinated fibers
- D) Gray matter

41. The "reward center" of the brain involves which neurotransmitter?

- A) Dopamine
- B) GABA
- C) Serotonin
- D) Acetylcholine

42. The H-shaped structure in the spinal cord cross-section represents:

- A) White matter
- B) Gray matter
- C) Myelin sheath
- D) Dorsal root

43. Which part of the brain is affected in epilepsy?

- A) Cerebral cortex
- B) Cerebellum
- C) Medulla
- D) Thalamus

44. Which reflex protects the body from harmful stimuli?

- A) Stretch reflex
- B) Withdrawal reflex
- C) Knee-jerk reflex
- D) Babinski reflex

45. Which brain area is responsible for forming new memories?

- A) Hippocampus
- B) Cerebellum
- C) Amygdala
- D) Hypothalamus

46. The neurotransmitter GABA is:

- A) Excitatory
- B) Inhibitory
- C) Both
- D) None

47. Which brain disorder is characterized by loss of myelin sheath?

- A) Multiple sclerosis
- B) Parkinson's disease
- C) Huntington's disease
- D) Alzheimer's disease

48. The region between the midbrain and medulla is:

- A) Thalamus
- B) Pons
- C) Cerebellum
- D) Corpus callosum

49. Which cranial nerve controls eye movement?

- A) Optic nerve (II)
- B) Oculomotor nerve (III)
- C) Vagus nerve (X)
- D) Trigeminal nerve (V)

50. Which brain lobe processes auditory information?

- A) Frontal
- B) Temporal
- C) Occipital
- D) Parietal

51. Which part of the brain regulates hunger and thirst?

- A) Thalamus
- B) Hypothalamus
- C) Cerebellum
- D) Medulla

52. Which glial cells form the myelin sheath in the central nervous system (CNS)?

- A) Schwann cells
- B) Oligodendrocytes
- C) Astrocytes
- D) Microglia

53. The junction between two neurons is called:

- A) Axon terminal
- B) Synapse
- C) Dendrite
- D) Soma

54. Which cranial nerve is responsible for smell sensation?

- A) Optic (II)
- B) Olfactory (I)
- C) Vagus (X)
- D) Glossopharyngeal (IX)

55. The autonomic nervous system controls:

- A) Voluntary muscles
- B) Involuntary organs
- C) Skeletal muscles
- D) Only brain

56. Which neurotransmitter deficiency causes Parkinson's disease?

- A) Acetylcholine
- B) Dopamine
- C) Serotonin
- D) Histamine

57. Which meningeal layer is the innermost and directly covers the brain?

- A) Dura mater
- B) Arachnoid mater
- C) Pia mater
- D) None

58. Which part of the neuron receives impulses from other neurons?

- A) Axon
- B) Dendrite
- C) Synaptic knob
- D) Node of Ranvier

59. Which part of the brain is involved in balance and posture?

- A) Cerebrum
- B) Cerebellum
- C) Hypothalamus
- D) Medulla

60. Which cranial nerve is the longest and controls heart, lungs, and digestive tract?

- A) Trigeminal
- B) Facial
- C) Vagus
- D) Oculomotor

61. In a reflex arc, the impulse bypasses:

- A) Spinal cord
- B) Brain
- C) Sensory neuron
- D) Motor neuron

62. Which type of potential travels along a neuron to transmit signals?

- A) Resting potential
- B) Graded potential
- C) Action potential
- D) Synaptic potential

63. Which ion is mainly responsible for depolarization during an action potential?

- A) Na^+
- B) K^+
- C) Cl^-
- D) Ca^{2+}

64. Which brain imaging technique measures electrical activity of neurons?

- A) MRI
- B) EEG
- C) CT scan
- D) PET scan

65. Which part of the nervous system is activated during "fight or flight" response?

- A) Parasympathetic
- B) Sympathetic
- C) Somatic
- D) CNS

66. Which cranial nerve controls facial expressions?

- A) Trigeminal (V)
- B) Facial (VII)
- C) Vagus (X)
- D) Glossopharyngeal (IX)

67. Which brain part processes visual information?

- A) Frontal lobe
- B) Occipital lobe
- C) Parietal lobe
- D) Temporal lobe

68. Which structure connects the two cerebral hemispheres?

- A) Pons
- B) Medulla
- C) Corpus callosum
- D) Cerebellum

69. Which disease results from loss of dopamine-producing neurons in substantia nigra?

- A) Alzheimer's disease
- B) Parkinson's disease
- C) Huntington's disease

D) Epilepsy

70. The cerebrospinal fluid (CSF) is produced by:

- A) Medulla
- B) Choroid plexus
- C) Thalamus
- D) Pons

71. Which lobe of the brain is responsible for reasoning and decision-making?

- A) Frontal lobe
- B) Temporal lobe
- C) Parietal lobe
- D) Occipital lobe

72. Which cranial nerve carries information about hearing and balance?

- A) Olfactory
- B) Optic
- C) Vestibulocochlear
- D) Vagus

73. The gap between two Schwann cells is called:

- A) Synapse
- B) Node of Ranvier
- C) Axon hillock
- D) Myelin sheath

74. Which brain part regulates respiration and heartbeat?

- A) Medulla oblongata
- B) Cerebellum
- C) Thalamus
- D) Hypothalamus

75. Which disorder is characterized by uncontrolled electrical activity in the brain?

- A) Parkinson's disease
- B) Epilepsy
- C) Alzheimer's disease
- D) Multiple sclerosis

76. Which brain part is responsible for emotional responses like fear and anger?

- A) Hippocampus
- B) Amygdala
- C) Cerebellum
- D) Thalamus

77. The outermost layer of the brain (gray matter) is called:

- A) White matter
- B) Cerebral cortex
- C) Medulla
- D) Basal ganglia

78. Which neurotransmitter is commonly associated with mood and depression?

- A) Dopamine
- B) Serotonin
- C) Acetylcholine
- D) GABA

79. Which brain disorder involves degeneration of neurons producing acetylcholine?

- A) Alzheimer's disease
- B) Epilepsy
- C) Multiple sclerosis
- D) Parkinson's disease

80. Which part of the neuron contains the nucleus?

- A) Dendrite
- B) Axon
- C) Cell body (soma)
- D) Synapse

81. Which cranial nerve controls vision?

- A) Optic nerve (II)
- B) Olfactory nerve (I)
- C) Oculomotor nerve (III)
- D) Vagus nerve (X)

82. Which brain lobe processes sensory input like touch and pain?

- A) Temporal lobe
- B) Parietal lobe
- C) Frontal lobe
- D) Occipital lobe

83. Which protective structure prevents harmful substances from entering the brain?

- A) Meninges
- B) Blood-brain barrier
- C) Pia mater
- D) Cerebrospinal fluid

84. Which neurotransmitter is released at the neuromuscular junction?

- A) Dopamine
- B) Acetylcholine
- C) Serotonin
- D) Histamine

85. Which brain waves are dominant during deep sleep?

- A) Alpha waves
- B) Beta waves
- C) Delta waves
- D) Theta waves

86. Which brain part is responsible for controlling language comprehension?

- A) Broca's area
- B) Wernicke's area
- C) Hippocampus
- D) Hypothalamus

87. Which type of neurons connect sensory and motor neurons?

- A) Sensory neurons
- B) Interneurons
- C) Motor neurons
- D) Glial cells

88. Which nervous system division conserves energy and promotes digestion?

- A) Sympathetic
- B) Parasympathetic
- C) Somatic
- D) Central

89. Which ion movement restores the resting potential after an action potential?

- A) Influx of Na^+
- B) Efflux of K^+
- C) Influx of Ca^{2+}

D) Efflux of Cl^-

90. Which brain part is damaged in Huntington's disease?

- A) Basal ganglia
- B) Cerebellum
- C) Hypothalamus
- D) Medulla

91. Which fluid cushions the brain and spinal cord?

- A) Synovial fluid
- B) Blood plasma
- C) Cerebrospinal fluid
- D) Lymph

92. Which brain part is called the "relay station" for sensory impulses (except smell)?

- A) Thalamus
- B) Hypothalamus
- C) Medulla
- D) Pons

93. Which cranial nerve is responsible for taste sensation from the anterior tongue?

- A) Glossopharyngeal
- B) Vagus
- C) Facial
- D) Trigeminal

94. Which part of the neuron is insulated by the myelin sheath?

- A) Dendrites
- B) Soma
- C) Axon
- D) Synapse

95. Which brain disorder is due to uncontrolled death of neurons and memory loss?

- A) Alzheimer's disease
- B) Parkinson's disease
- C) Epilepsy
- D) Multiple sclerosis

96. Which nervous system controls reflex actions?

- A) Central nervous system

- B) Peripheral nervous system
- C) Somatic nervous system
- D) Spinal cord

97. Which lobe of the brain contains the primary motor cortex?

- A) Frontal lobe
- B) Parietal lobe
- C) Temporal lobe
- D) Occipital lobe

98. Which neurotransmitter inhibits neuronal activity to calm the brain?

- A) Acetylcholine
- B) GABA
- C) Dopamine
- D) Serotonin

99. Which nerve transmits visual information to the brain?

- A) Optic nerve
- B) Olfactory nerve
- C) Trigeminal nerve
- D) Vestibulocochlear nerve

100. Which part of the brain connects the brain to the spinal cord?

- A) Cerebellum
- B) Brainstem
- C) Corpus callosum
- D) Thalamus

1. Cerebrum – controls voluntary actions & intelligence.

2. Dendrites – receive signals.

3. Medulla oblongata – controls heartbeat & breathing.

4. Neuron – functional unit.

5. Spinal cord – reflex actions.

6. Myelin sheath – insulates axons, speeds impulses.

7. Synapse – junction b/w neurons.

8. Optic nerve – vision.

9. Axon – carries impulses away.

10. Cerebellum – balance & coordination.

11. Cerebrospinal fluid – cushions brain/spinal cord.

12. Autonomic NS – involuntary functions.

13. Medulla – breathing center.

14. Frontal lobe – reasoning, planning.

15. Temporal lobe – hearing.

16. Occipital lobe – vision.

17. Parietal lobe – touch, taste, pressure.

18. Spinal nerves – 31 pairs.

19. Cranial nerves – 12 pairs.

20. Reflex arc – shortest path, protects body.

21. Motor neuron – carries commands to muscles.

22. Sensory neuron – carries info from receptors.

23. Sympathetic NS – fight or flight.

24. Parasympathetic NS – rest and digest.

25. Hypothalamus – maintains homeostasis.

26. Cerebellum – voluntary muscle coordination.

27. Motor neuron – sends impulse to effector.

28. Acetylcholine – reduced in Alzheimer's.
29. Myelinated axons – saltatory conduction.
30. Hypothalamus – controls pituitary.
31. Calcium ions – trigger neurotransmitter release.
32. Thalamus – relay center for senses.
33. Broca's area – speech production.
34. Phrenic nerve – diaphragm control.
35. Axon – transmits away from soma.
36. Microglia – immune cells, phagocytic.
37. Multiple sclerosis – demyelination.
38. Hypothalamus (SCN) – circadian rhythm.
39. Somatic NS – controls skeletal muscles.
40. Thick myelinated fibers – fastest conduction.
41. Dopamine – reward pathway.
42. Gray matter – H-shaped spinal cord area.
43. Cerebral cortex – affected in epilepsy.
44. Withdrawal reflex – protective reflex.
45. Hippocampus – memory formation.
46. Inhibitory – GABA action.
47. Multiple sclerosis – myelin sheath loss.
48. Pons – bridge b/w brain regions.
49. Oculomotor nerve (III) – eye movement.
50. Temporal lobe – hearing & auditory info.
51. Hypothalamus – hunger & thirst center.
52. Oligodendrocytes – CNS myelin.
53. Synapse – neuron junction.
54. Olfactory nerve (I) – smell.
55. Autonomic NS – involuntary control.
56. Dopamine – deficiency → Parkinson's.
57. Pia mater – innermost meninge.
58. Dendrites – receive impulses.
59. Cerebellum – posture & balance.
60. Vagus nerve (X) – longest cranial nerve.
61. Brain – bypassed in reflex arc.
62. Action potential – nerve signal.
63. Na^+ influx – depolarization.
64. EEG – records brain waves.
65. Sympathetic NS – fight or flight.
66. Facial nerve (VII) – facial expressions.
67. Occipital lobe – vision.

68. Corpus callosum – connects hemispheres.

69. Parkinson's disease – substantia nigra affected.

70. Choroid plexus – makes CSF.

71. Frontal lobe – reasoning & decisions.

72. Vestibulocochlear nerve (VIII) – hearing, balance.

73. Node of Ranvier – gap b/w Schwann cells.

74. Medulla oblongata – respiration & heartbeat.

75. Epilepsy – abnormal brain electrical activity.

76. Amygdala – emotions.

77. Cerebral cortex – gray matter surface.

78. Serotonin – mood & depression.

79. Alzheimer's disease – loss of acetylcholine neurons.

80. Cell body (soma) – contains nucleus.

81. Optic nerve (II) – vision.

82. Parietal lobe – touch, pressure.

83. Blood-brain barrier – protective filter.

84. Acetylcholine – at NMJ.

85. Delta waves – deep sleep.

86. Wernicke's area – comprehension of language.

87. Interneurons – connect sensory & motor.

88. Parasympathetic NS – rest & digest.

89. K^+ efflux – restores resting potential.

90. Basal ganglia – damaged in Huntington's.

91. Cerebrospinal fluid – cushions CNS.

92. Thalamus – relay station.

93. Facial nerve (VII) – anterior tongue taste.

94. Axon – myelin sheath wraps around it.

95. Alzheimer's disease – memory loss, neuron death.

96. Spinal cord – controls reflexes.

97. Frontal lobe – primary motor cortex.

98. GABA – inhibitory neurotransmitter.

99. Optic nerve (II) – transmits vision.

100. Brainstem – connects brain & spinal cord.